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**To: The Commission**

In order for public safety to attain its goal, "Protection of Life and Property," additional spectrum is required.

New technology has provided a means to use additional spectrum. However, this technology is driven by two major manufacturers, who cannot agree upon a common infrastructure. Unless all equipment is compatible and available, the cost to the tax payer is outrageous and cost prohibitive for most agencies.

Commercial Services, while available today, are used to supplement public safety communications, may not be suitable during a crisis. This type of communication may best be used by public safety in an administrative role.

The Texas Department of Public Safety considers auctioning of any public safety spectrum as abominable. There is no spectrum within public safety that should be targeted for auction. The Spectrum is needed and is utilized daily.

The inefficiency and length of frequency coordination will remain if the Commission allows the present structure to remain in place. The Texas Department of Public Safety, who supports the Texas Chapter of APCO, Inc., Frequency Advisor, feels coordination can be accomplished by using proper coordination management. We are prepared to support the coordination effort for all of the State of Texas frequency applications, if the Commission so determines.

### **III. BACKGROUND**

The Commission in providing the background in the NPRM has provided a clear picture of the spectrum congestion. Since the inception of public safety, as defined in the Rules and Regulations, public safety has operated its communications systems fragmentally. Texas, with its vast differences in population and geographic area, has experienced the migration difficulties in spectrum from low band (30-50 MHz) to the present day 800 MHz. With the small amount of spectrum available to public safety, 24 MHz spaced within four different bands, it is a wonder communication is able to take place.

Considering the development of the National Public Safety Planning Advisory Committee (NPSPAC)<sup>1</sup>, requiring public Safety to develop a plan on a regional basis throughout the United States, accomplished the recommendation for additional spectrum. With six NPSPAC regions in Texas, the Texas Department of Public Safety will formalize a Spectrum Management Committee consisting of representatives from different public safety agencies and services from within the NPSPAC regions. This committee will be prepared to develop a state plan on the usage of all new spectrum allocated to public safety, if the Commission so desires.

The Texas Department of Public Safety is looking forward to reviewing the PSWAC recommendations. From all indications, we will support in part the PSWAC recommendations.

However, commercial services, while being used within public safety today, will not be available for reliable public safety communications during the greatest period of need. During a period of disaster, all of the commercial channels will be unusable due to priority of all commercial users bidding for air time.

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<sup>1</sup> See Report and Order, Gen. Docket No. 87-112

#### **IV. INTEROPERABILITY ISSUES**

The Commission seems to have formed a conclusion with the statement, "Given the current state of public safety communications, each agency most likely operates its own communications system on its own channels, using technologies that are incompatible with the equipment used by other agencies."<sup>2</sup> This is a perceived theory and completely inaccurate. Public Safety agencies, who wish to interoperate, are already doing so. The Commission must understand that interoperability is not a technical problem, but a problem in administration and equipment compatibility. With manufacturer's developing proprietary systems, agencies are held hostage once they procure a system where their equipment is not compatible.

Within the NPSPAC spectrum, the Commission required the five national calling channels to be compatible regardless of the manufacture. This allows for interoperability on these five channels only. The Commission should consider mandating common compatibility on all communications equipment developed and type accepted.

#### **V. PUBLIC SAFETY DEFINITION**

The Commission should be commended for the interest shown in defining public safety. However, we take exception to the proposed expansion of the public safety definition. We feel the present definition of Public Safety services<sup>3</sup> has served well through the years and should not be changed. Throughout the NPRM, the Commission has stated the spectrum is and will be in short supply, to the extent that public safety will not be allocated the amount of spectrum needed to satisfy its current and future needs. Considering public safety systems are developed at tax payers expense, while entities such as railroads, petroleum, utilities, etc., is "for profit" based. The "for profit" entities should not have access to public safety spectrum under any circumstances.

When interoperability between "for profit" entities and public safety is required, it should be accomplished by an agreement between the two agencies. The "not for profit" agency would have the responsibility to provide a frequency(s) for interoperability during said emergency.

#### **VI. INTEROPERABILITY DEFINITION**

The Commission must be commended for defining Interoperability and the different communications links. It is hoped that this will encompass the compatibility issue that is prevalent in public safety today. Under no circumstances, without cross patching, is public safety able to interoperate when different manufacturer's equipment is utilized. Fundamental features prohibit this desired capability.

We believe Mission Critical is a definition that must be addressed. The PSWAC interoperability Subcommittee<sup>4</sup> addresses this definition, "as communications which must be immediate, ubiquitous, reliable, and in most cases, secure." The Texas Department of Public Safety, fully supports this definition. Public Safety agencies generally do not have a requirement to interoperate unless some significant event is occurring. Therefore, all or virtually all interoperability communications are "mission critical."

#### **VII. INTEROPERABILITY OPTIONS**

The Texas Department of Public Safety, wishes to place before the Commission a fourth requirement, Federal Government, Department of Defense (DOD). With the number of military bases

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<sup>2</sup> See NPRM WT Docket No. 96-86, para 21

<sup>3</sup> See 47 C.F.R. 90.15

<sup>4</sup> PSWAC/ISC 96-05-37/7, Draft report, Revised 7/3/96 pg 9

throughout the country, there is a justifiable requirement to be able to communicate with public safety. The reverse is also true. Different public safety agencies, Police, Fire, Medical and Emergency Management must interoperate with their military counterparts, within their jurisdiction, during crises.

We emphasized the point that those agencies who really want interoperability to function already are accomplishing it. However, as management changes so do ideas on the administration of these agreements. The Commission should highly encourage these interoperability agreements.

With public safety utilizing four (4) bands and around twenty-four (24) MHz of spectrum, it is cost prohibitive to move public safety into one contiguous band. To accomplish this, a minimum of ten (10) to fifteen (15) years would be required to vacate the proposed spectrum. Another ten (10) to fifteen (15) years will be required for public safety to budget for and accomplish this move. This is not a viable option for public safety to consider.

Regarding Universal Mutual Aid channels in the bands 30-800 Mhz.<sup>5</sup> This is cost prohibitive and unsatisfactory. To develop a stock-pile of radios, to be used in a time of disaster, is very costly both in equipment cost and maintenance. Where these stock-piles would be located is like asking where and when a disaster will occur?

## **VIII. SERVICE FEATURES**

Public Safety has an absolute need for additional spectrum to satisfy the current as well as future needs. The requirements have been recognized by the PSWAC subcommittees as valid. Even with the yet to be developed compression schemes and other proposed methods for spectral efficiency, additional spectrum is required.

The Commission requests comments concerning prioritizing needs. The Texas Department of public safety feels the Commission shows a significant lack of understanding about how critical public safety communications is and just how communication takes place. Prioritizing the categories of communications is basically saying some categories are not necessary and could be disbanded. We consider all communications to be essential for the protection of life and property and must be available at all times. We are firmly convinced that prioritization of public safety's needs is an unworkable and ill-conceived approach to satisfying public safety need for additional spectrum.

In answer to the Commission's questions concerning the allocation of additional spectrum, additional allocation of spectrum for public safety is in dire need. While public safety has and will continue to employ all workable schemes to increase spectrum efficiency, those means, along with system sharing, will never be able to address the shortage public safety continues to experience. Commercial providers have not and cannot meet the demand concerning many factors, only one of them being their systems design and configuration lack the features required by public safety.

## **IX. TECHNOLOGY ISSUES**

In order to increase spectrum efficiency, public safety has incorporated trunking into their systems. During the last fifteen years, agencies seeking additional spectrum, and could procure monetary support from their tax base and acquire trunking systems of three channels or more. However, public safety remains hampered with the incompatibility of trunked radio systems offered by competing vendors. Incompatibility has been an obstacle to linking multiple systems for shared, wide-area usage.

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<sup>5</sup> WT Docket No. 96-86, para 36

The Commission may have stopped short when it mandated trunking in the 800 MHz spectrum by not requiring vendors to develop non-proprietary, open architecture operating systems. Public Safety entities must derive funding from tax based revenues to procure communications systems based upon competitive bidding. The lowest bid normally is the deciding factor. In trying to develop an area wide system with multiple agencies, this process makes it impossible to guarantee the same vendor will be selected by all agencies. With each vendor having proprietary operating systems, and each agency bound by law to choose the lowest bid, a system may have two or three different vendor's equipment that are incompatible. This prevents having mutual use of a multiple, linked, area-wide system.

If the Commission mandates a standard under this new rule making, it is imperative it results in a complete, all-encompassing open architecture that will allow any manufacturer to build equipment compatible with all end-user equipment. We recommend any and all digital baseline standards for interoperability be open standards, developed and adopted in an open and fair process using an accredited standard making entity.

The Texas Department of Public Safety supports NTIA in suggesting the Commission adopts standards on receivers. As public safety moves into the next millennium, with narrowband transmitters in operation, non-regulation of receivers will have a disastrous impact upon communications. The bandwidth of transmitters recommended by the Commission of 12 1/2 KHz today and 6 1/4 KHz tomorrow will afford Public Safety to group transmitters closer together. However, with a wideband receiver, receiving two to four different signals will deteriorate readability of the incoming transmission.

## **X. SPECTRUM ALLOCATIONS**

While the Commission request comments on Spectrum Allocations, you also suggest the use of commercial services to supplement public safety. To reiterate, commercial services are not suitable for Public Safety during emergency situations. Commercial services should be used within public safety for administrative, non-emergency purposes.

Today, public safety has approximately 23.2 MHz of spectrum divided among four distinctive bands. Already two major manufacturer's have stated they will no longer supply equipment in the frequency band 25-50 MHz. Therefore, it is assumed the 6.3 MHz of spectrum in this band will not be available. This will leave only 16.9 MHz of spectrum supported by the two largest manufacturer's.

It is felt, the Commission must put their priorities in order. Public Safety, in order to accomplish their responsibility to the general public, must have additional spectrum. Without this support spectrum, public safety agencies will not be able to protect life and property of the citizens of our communities. The Texas Department of Public Safety encourages the Commission to re-evaluate their priorities concerning spectrum for public safety and sources of spectrum in the VHF and UHF television band. NTIA has identified spectrum available from the Department of Defense (DOD). While the majority of the spectrum is located in the GHz bands, they also identified spectrum in the VHF and UHF bands that could be made available.

Public Safety, according to PSWAC require 129.3 MHz of spectrum by 2010 in order to provide the protection of life and property. The major portion of this spectrum must come from the VHF and UHF spectrum bands. Presently there are existing TV channels 14-20 used in the major metropolitan areas. However, these channels can not be used outside of the designated areas. Taking into consideration that public safety has 23.2 MHz of spectrum today and we will not be supported by two large manufacturer's on 6.3 MHz of that spectrum, public safety has a requirement for 106.1 MHz of spectrum. ( $129.3 - 23.2 = 106.1$ ). If the 6.3 MHz of spectrum in Low Band is completely lost, an additional 6.3 MHz of spectrum will be required for a total of 112.4 MHz of spectrum. The Texas Department of Public Safety feels the majority of this required spectrum must be between 130 and 512 Mhz. We also feel some of the administrative communications can be supported by commercial services. The amount and band have yet to be determined. The use of DOD spectrum in the 130 - 150 MHz and 380 - 400 MHz, along with

additional TV channels in the VHF and UHF range, could provide a substantial amount of the required spectrum.

Concerning the 335.4 - 399.9 MHz identified by the International Telecommunication Union (ITU) Region 2, there is no reason why this spectrum can not be reallocated to Public Safety over a ten year period. In the interim, both Public Safety and the DOD could jointly use the spectrum. There are several areas in the country where the military has no presence. With the closure of several installations around the country, their requirements for spectrum nation wide must be reevaluated.

The Texas Department of Public Safety fully supports the Commission's views considering spectral efficient technologies and system designs concerning providing more public safety users additional spectrum. The Commission is encouraged to take swift and efficient action on PR Docket 92-235.<sup>6</sup> With the utilization of narrowband channels and quality frequency coordination, public safety will be able to provide the protection of life and property in a quicker manner.

## **XI. TRANSITION**

The Texas Department of Public Safety has mixed concerns on the topic of transition to new or reallocated spectrum. We feel, given a date in which the newly allocated spectrum would be available for exclusive public safety operations, and given the opportunity of co-share of identified spectrum during the transition period, public safety could plan and budget funding to complete the transition in the required period of time. The larger areas, who have a greater tax base from which to draw could possibly begin the transition when spectrum was available and agreement with the other service is arranged. In the rural areas, this transition period will take longer because of tax base; however, they should be able to meet the time period to be completed. This would be the case in the UHF spectrum proposed by PSWAC on the DOD spectrum.

Public Safety, agencies being a tax based entity, are unable to fund new and spectral efficient systems without voter approval. Thus, a longer planning cycle is required in order for public safety to become state of the art.

## **XII. INCREASE USE OF COMMERCIAL SERVICES**

As stated earlier in this reply, use of commercial services by public safety should be limited to administration. AN example would be a volunteer fire department using commercial paging to alert their personnel. Once alerted and engaged in travel to and from the scene, radio channels need to be used.

Until public safety is able to establish a quality working relationship with commercial services and operational agreements in place, Public Safety must have additional spectrum for operations.

## **XIII. FUNDING FOR SPECTRUM MIGRATION**

The Commission's concept of auction of Public Safety channels is misinformed. There is no spectrum within public safety, except possibly Low Band 30-50 MHz, that should be considered for auction. However, who would want the problems associated with this band? The Texas Department of Public Safety wishes to remain within the VHF band because this band provides the propagation required to accomplish our mission. For the Commission to consider auctioning any public safety spectrum to fund the replacement of equipment would hinder the operations of public safety rather than assisting. The Texas Department of Public Safety urges the Commission to reevaluate their auction concept of the public safety spectrum. Contiguous spectrum between 130 and 200 MHz would be ideal for the Texas

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<sup>6</sup> See DA 96-1173 (Replacement of Part 90 by Part 88 to revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, PR Docket 92-235 adopted July 22, 1996.

Department of Public Safety and we urge the Commission to consider contiguous spectrum assignment in this spectrum range.

#### **XIV. IMPROVING PUBLIC SAFETY SPECTRUM ADMINISTRATION**

The Texas Department of Public Safety, agrees with the Commission that the present spectrum and administration of the public safety spectrum has been and will continue to be inefficient and lengthy. As long as the Commission insists on the present process, this will continue. Through the Commission's rule making, public safety has been able to take the coordination away from each state, where the vast knowledge concerning terrain, propagation, (path loss) true areas of jurisdiction, and personal contacts which easily resolved coordination concerns, and directed different agencies to be responsible for coordination.<sup>7</sup> This has slowed the coordination process considerably. APCO Inc., has kept the true coordination in each state with their advisor program. The Texas Department of Public Safety has provided this function for APCO and has one of the greatest amount of applications coordinated within APCO. We feel that without the present process through APCO, the Texas Department of Public Safety, could provide a quicker turn around, if that responsibility was required. The Texas Department of Public Safety, if directed by the Commission, is willing to support the Texas Chapter of APCO, Inc., in undertaking this responsibility for the State of Texas. Neighboring states will remain in the picture on all coordination within seventy-five (75) miles of their borders. Concerning our neighboring country to the south, we will cooperate with both the FCC and the State Department in coordination matters.

#### **XV. COMPETITION IN THE SUPPLY OF GOODS AND SERVICES**

Conclusions of the Commission are on target. Any rules adopted by the Commission must be technology-neutral. For public safety to attain interoperability, rules directing non-propriety systems are required. With non-propriety requirements, the cost to public safety will be demising as an open competitive market develops.

APCO Project 25 establishes a standard which requires a public safety agency to remain with APCO 25 vendor's. Project 25 will not allow interoperability between all public safety agencies unless all agencies procure APCO 25 equipment. Interoperability between public safety agencies must have compatible equipment in operation, not exclusive proprietary systems.

#### **XVI. CONCLUSION**

Throughout these comments, we emphasized the interoperability concerns within Texas. Our opinion is that open competitive bidding on communications systems is the basic requirement for a quality system. As long as the Commission allows proprietary equipment to be type accepted, public safety will suffer.

Spectrum is the greatest need for public safety. The present 24 MHz of spectrum in public safety today is not adequate for our present and future requirements. PSWAC has identified a need for 129.3 MHz of spectrum required by 2010. Proceedings by the Commission are urged in order to allocate the spectrum required by public safety.

cc: FCC -- 10

Texas Department of Public Safety

  
Dudley M. Thomas  
Director

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<sup>7</sup> See Fact Sheet PR 5000, Number 301, Part 90 Frequency Coordinators, dated August 1995.